SECTION 302
AGGREGATE BASE OR SURFACE COURSE

302.01 DESCRIPTION.

This work consists of furnishing and placing one or more courses of aggregate and additives on a prepared foundation.

302.02 MATERIALS.

A. **Aggregate.** Aggregates shall meet Section 816 for the class of aggregate specified.

B. **Acceptance.** A lot is defined as one day's production if production is greater than 1,000 tons per day. If production is less than 1,000 tons per day, then a lot is as many days' production as necessary to reach 1,000 tons. If plan quantity is less than 1,000 tons, a lot shall be equal to plan quantity. A day's production will not be split into more than one lot.

Three random samples will be taken for each lot of material placed. If the base material is placed in a windrow on the roadway, the sample will be taken from the equalized aggregate windrow according to the procedures outlined in NDDOT's *Field Sampling and Testing Manual*. If construction operations do not require that the base material be equalized in a windrow, the sample will be taken according to the procedures outlined in AASHTO T-2 with the belt sample given first priority. These samples will be tested and the material accepted if the average of the 3 samples meets the gradation specified. If the material from all 3 samples meets the gradation specified only one of the 3 samples will be tested from each subsequent lot. If the sample tested does not meet the gradation requirements, the remaining 2 samples will be tested. The average gradation of these 3 samples will then be used to determine acceptance of the material. The testing of 3 samples per lot will continue until all 3 samples meet the gradation specified then only one of the 3 samples will be tested from each subsequent lot. When the aggregate does not meet the gradation specified, a reduction in the Contract Unit Price will be made. If the aggregate fails to meet the specified gradation on one or more sieves, the reduction will be the sum of the deductions as calculated below.

Unit Price Reduction: Percent of Deduction = 5 x percent of deviation from range limits.

If material is produced that deviates from the specified gradation for 2 consecutive lots incorporation of additional material into the work will not be allowed until the Contractor takes the necessary corrective action to meet the specifications.

The physical properties of the aggregate will be determined from three random samples taken from the stockpile from each lot of 10,000 tons or fraction thereof.

If a fraction of a lot is less than 2,500 ton, it will be included with the previous lot of 10,000 tons. If the material from all three samples is within the specified limits, only one of the three samples will be tested from each subsequent lot. If at anytime the sample tested fails to meet the specified limits, the remaining 2 samples will be tested and the physical properties of each lot will be determined by the average of these 3 test results. The testing of three samples per lot will continue until all three samples are within the specified limits then only one of the three samples will be tested from each subsequent lot. If the average exceeds the specified limits for shale, the unit price for aggregate will be adjusted according to Section 302.06. If the average exceeds the specified limits for plasticity index or fractured faces, the Contractor shall correct the stockpile so the material meets specifications.

The L.A. Abrasion loss percentage will be determined on the basis of one composite aggregate sample taken and tested during the beginning of the aggregate stockpiling. If the aggregate source has been tested previously by the Department and the material is within the allowable limits, the tests for the L.A. Abrasion loss percentage will not be required.

302.03 EQUIPMENT.

Equipment shall meet the following:

Item	Section
General	151.01
Water-Hauling Equipment	151.03 A
Material-Hauling Equipment	151.03 B
Tow-Type Pneumatic-Tired Rollers	151.02 A
Self-Propelled Pneumatic-Tired Rollers	151.02 B

302.04 CONSTRUCTION REQUIREMENTS.

A. **Pit Operations.** Stripping of the pit and pit operations shall be according to Section 106.02 and other Contract requirements to produce an aggregate meeting the specification for the class specified.

B. **Subgrade Preparation.** Subgrade preparation shall be completed according to Section 230.02 B.2.

C. **Depositing and Laydown.** The aggregate shall be deposited, spread, and shaped so the moist and compacted course conforms to the required grade and cross section within the tolerance specified in this Section.

D. **Compaction.** Compaction shall be carried out simultaneously with laydown operations, and the compacted depth of a single course shall not exceed 6 inches. All equipment shall be operated to produce uniform density throughout the entire section. Pneumatic–tired rollers of the type specified in Section 151 shall be used. The desired degree of compaction will be considered obtained when the surface is tightly bound and shows no rutting or displacement under roller operation.

E. **Application of Water.** Water shall be applied according to Section 216 as needed to secure required results.

F. **Surface Tolerance.** The surface of the completed base shall be tightly bound, smooth, and uniform; and conform to the cross section and grade specified.

Surface tolerance Type A shall be used unless specified.

1. **Surface tolerance Type A.** The finished surface shall not vary from the prescribed cross section elevation by more than 0.08 feet. The longitudinal profile shall not vary by more than 0.08 feet from the grade line established by the Engineer.

2. **Surface Tolerance Type B.** Trimming equipment with automatic grade controls shall be used when surface tolerance Type B is specified. Motor graders may be used as trimming equipment. The automatic grade controls shall adjust for the cross slope and longitudinal profile. The automatic controls shall produce a finished surface that does not vary from the prescribed cross section elevation by more than 0.04 feet from the grade line established by the Engineer.

3. **Surface Tolerance Type C.** Trimming equipment with automatic grade controls shall be used when surface tolerance Type C is specified. The automatic grade controls shall adjust for the cross slope and longitudinal profile. Motor graders shall not be used as trimming equipment. Roadbed planers shall be used as trimming equipment as specified in section 153.06. Grade control shall be taken from a taut string line erected parallel to the grade line established by the Engineer, except the Engineer may permit a base or surface course to be used as a grade reference for trimming the shoulders. The taut string lines shall be erected and maintained so the automatic controls produce a finished surface that does not vary from the prescribed cross section elevation by more than 0.04 feet from the grade line established by the Engineer.

G. **Limitations.** The quantity of aggregate permitted in windrows on roadways open to traffic, shall not exceed 3 miles. The aggregate shall be layed within 72 hours after being placed in the windrow.

Aggregate shall not be placed on a frozen subgrade.

H. **Maintenance of Completed Courses.** When the Contract includes successive base courses or base and surface courses, each course shall be maintained in a smooth and compacted condition until the succeeding course is placed.

302.05 METHOD OF MEASUREMENT.

A. **Subgrade Preparation.** Subgrade preparation will be incidental to aggregate base work. When specified as a pay item, measurement will be made according to Section 230.

B. **Aggregate Base or Surface Course.** Measurement will be by the Ton or Cubic Yard, as specified.

C. **Water.** Measurement will be made according to Section 216.

302.06 BASIS OF PAYMENT.

Payment will be made at the Contract Unit Price for the following:

Pay Item	Pay Unit
Subgrade Preparation	Mile, Station, Square Yard
Aggregate Base or Surface Course	Ton or Cubic Yard
Water	M. Gallons

This payment will be full compensation for all labor, equipment, and materials necessary to complete the work.

When the average of the test results specified in Section 302.02 shows a larger percentage of shale than the maximum allowable specified, a one percent reduction in the unit price will be made for each 0.2% above the allowable percentage. If the percentage of shale exceeds the allowable limit by 3% or more, the material will be rejected unless the material is accepted under Section 105.07.

When a mixture is subject to pay reduction as described in both Sections 302.02 and 302.06, the Bid Price will be reduced by the sum of the price adjustments.

SECTION 304
PERMEABLE STABILIZED BASE COURSE

304.01 DESCRIPTION.

This work consists of constructing a permeable stabilized base course mixed in a central plant and placed on a prepared subbase. The Contractor shall have the option of using Portland Cement or Asphalt Cement as a stabilizing agent to stabilize the base course.

304.02 MATERIALS.

A. **Aggregate.** The aggregate shall be a Class 7 aggregate as specified in Section 816.03.

Each lot of aggregate will be sampled by the Contractor, under the observation of and at random locations determined by the Engineer. A lot is defined as one day's production if production is greater than 4,500 square yards per day. If production is less than 4,500 square yards per day, then a lot is as many days' production as necessary to place 4,500 square yards. If plan quantity is less than 4,500 square yards, a lot shall be equal to plan quantity. A day's production will not be split into more than one lot.

Three random samples for each lot will be obtained by the Contractor, under the observation of and at a location determined by the Engineer. The sampling procedures shall meet the requirements of AASHTO T–2. These samples will be tested and the material accepted if the average of the 3 samples meets the gradation specified. If the material from all 3 samples meets the gradation specified only one of